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10/665,584

09/19/2003

Timothy J. Dalton

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02/25/2005

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EXAMINER

DICKEY, THOMAS L

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,584

Applicant(s)

DALTON ET AL

Examiner

Thomas L. Dickey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


Minhloan Tran
Primary Examiner
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Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2003 and 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/19/2003
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

1. The amendment filed on 01/07/2005 has been entered.

Information Disclosure Statement

2. The Information Disclosure Statement filed on 09/19/2003 has been considered.

Drawings

3. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 01/07/2005 have been approved.

Claim Rejections

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 41-48 are rejected under 35 U.S.C. 102(b) as being anticipated by SAITO ET AL. (2001/0045651),

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Saito et al. discloses a interconnect structure comprising a substrate 1; a copper (thus selected from the group consisting of: W, Cu, Al, Ag, Au and alloys thereof) conductive material 26b disposed on said substrate 1; an SiO porous or dense low k dielectric layer 29 (thus selected from the group consisting of: silicon-containing material formed from one or more of Si, C, O, F and H, PE CVD materials having a composition Si, C, O, and H, a fluorosilicate glass (FSG), C doped oxide, F doped oxide and alloys of Si, C, O and H) disposed on said conductive material 26b, wherein said low k dielectric layer 29 has a single or dual damascene etched openings that expose a surface of said conductive material 26b; metallic lines 35 and vias 30, filled with Cu, etched onto said low k dielectric layer 29; a TiN liner material 26a,35a (selected from the group consisting of TiN, TaN, Ta, WN, W, TaSiN, TiSiN, WCN, Ru and a mixture thereof) lining said metallic lines 35 and vias 30. Note figure 9 and paragraphs 0082,0093,0094, and 0102-0106 of Saito et al.

The applicant's claims 41-48 do not distinguish over the Saito et al. reference regardless of the process used to form said conductive material, because only the final product is relevant, not the recited process of treating said exposed surface of said conductive material in said etched openings with a condensable cleaning agent (CAA), activating the surface at a temperature about -200 °C to about 25 °C to remove oxide, oxygen and carbon containing residues from said surface of said conductive material, placing said interconnect structure in a first process chamber on a cold chuck to condense a layer of condensable cleaning agent within said etched openings on said

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substrate and thereafter activating said interconnect structure in a second process chamber on a cluster tool.

Note that a "product by process" claim is directed to the product per se, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear. See also MPEP 706.03(e).

Note that once the examiner produces what reasonably appears to be a *prima facie* case, the burden shifts to the applicant, "to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product." *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985), quoting *In re Fitzgerald*, 619 F.2d 67,70, 205 USPQ 594,596 (CCPA 1980). Note that *In re Thorpe* squarely places upon the applicant the burden of proving that "the prior art products do not necessarily or inherently possess the characteristics of his claimed product." 227 USPQ at 966. See also *In re Best*, 562 F.2d 1252,1255, 195 USPQ 430,433-34 (CCPA 1977), and *In re Brown*, 59 CCPA 1036, 1041, 459 F.2d 531, 535, 173 USPQ 685, 688 (1972), where

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the court explains the reasoning behind this rule: “[W]hen the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.” (emphasis added).

Response to Arguments

5. Applicant's arguments with respect to claims 41-48 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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